General Horticulture

21:120:106 (lecture - 3 credits) & 107 (lab - 1 credit)

Subject Syllabus for Lecture plus Laboratory

Fall 2016 - Prof. John H. Crow

The course covers essential information required for a basic understanding of horticulture in terms of the practical and the science behind the practices. Subjects range from those necessary to describe plants (morphology and anatomy), physiology, elementary soil science, genetics, metabolism, flowers, fruits, reproductive methodologies, biocides, growth substances, light, photoperiodism, and related horticultural subjects matter. This is a lot of material! Do not despair, the course provides practical experiences from lecture, lab, and field trips in a manner and intensity that will work for you if you attend, keep up with the assignments, and work at it. The course gives students first-hand laboratory experience that relates to gardening experiences and, at the same time, is about the science behind the practices. The lectures and labs also include material concerning seasonal and weather related topics in context as the weather and seasons change. Beginning this semester, many lectures will introduce subject matter in terms of plants you may want to grow in order to ensure that the science connects with what you actually do when gardening in the home or outside.

The class is designed to give the students a practical, relevant course in science that will be useful in their apartments, homes, offices, and countryside ever after. As noted above, the emphasis in this course is how the practices in horticulture are supported by science.

The course also makes many connections to art, history, economics, and even politics from time to time. Woven into the the course are references to new world crops, GMO science, thresholds in science, decoration and beauty, seasonal considerations, and a huge variety of other interesting subjects. The course draws attention to the scientific method and distinctions between that and opinion.

The class will further the students knowledge of science, ability to think critically, and evaluate data and ideas. Some topics confront students with issues and history related to botany and horticulture as they relate to individual and social responsibility. The primary objective is that students should leave with a much greater understanding of practical horticulture. Class goals

The first goal is to provide the students with quality information and experiences pertaining to practical horticulture that will be genuinely useful to them in their lives and lead to enjoyment of this great and beautiful subject; next, to expose students to this science in a way that they might gain an interest in, and understanding of, important subjects such as geography, soils, physiology, diversity, genetics, and toxic substances to name a few. Subjects such a toxic substances and genetics are undoubtedly be relevant to student well being, and this course is intended to better prepare students for these challenges in the lives you will lead. A third goal is to increase awareness of horticulture in art, history, culture, and economics that will carry into the future as
well. If successful, students will automatically be better educated citizens and have greater potential to be positive influences on others. A fourth is to improve student communication skills.

Class Format

The class includes both lecture and lab in an integrated format. The lectures are designed to encourage discussion and reaction! **At a minimum** there will be two extra-class assignments: a term paper (lecture only) and a botanical garden trip (both lecture and lab) that requires a minor report; some short assignments are anticipated as will. Scheduled quizzes are given frequently (usually 5 or 6) in lecture and are reviewed immediately in class and will not be returned after final grading (by appointment the quizzes can be privately reviewed); lecture and lab may also have **unannounced quizzes**. The quizzes are used as part of the lecture and laboratory and are not merely an examination tool. There is a midterm and final in laboratory along with a final in lecture. The examinations address material relative to the class content and goals. All assignments must be completed in accordance with dates set on the syllabus schedule (or as revised in a modified schedule) or a penalty will be assessed for late, incomplete, or missing assignments. **All quizzes and exams are cumulative with respect to content.** There are **no make-up quizzes or exams whatsoever, so do not ask.**

There is some very pleasant work in this class, but it will become difficult if you fall too far behind or treat the subject matter lightly. If you are having difficulty for whatever reason, come and see me to discuss. Then, if you cannot meet the challenge, drop the course as a last resort.

General information

Lecturer: Prof. Crow

Office: 139 Boyden Hall, 973-383-1315, and off-campus office 908-852-4855 (Susan).

Office hours: Tuesday to Thursday 8:45-9:45 AM and by arrangement by email, or direct contact in class.

Email: **drcrow@verizon.net**; all students can expect to be contacted regularly through Blackboard and it will be the student’s responsibility to make sure that their Blackboard account is working. Email is the best way to contact me. **You must put the code GHf16 at the beginning of the subject line followed by your last name and then the purpose of the email**; e.g., GHf16 Clinton cigars. If you do not follow this procedure, I may never see your email. **No excuses, use the code!** Your assignment attachments must match the subject line of the email. If an assignment is located late, the late penalty will apply. For example, if you have a report that is about corn and your name is Rita Valdez, the subject line of the email would be: GHf16 Valdez corn report. The attachment would be exactly the same; i.e., GHf16 Valdez corn report. Got it! This way, your emails will go to the correct folder in my computer and the assignments will be filed automatically. **Make sure you do this correctly.**
Website:  
http://drcrow.org is the course website. Many materials will be supplied on the web including all the lab protocols (usually at least a week in advance - **always bring printed copies to the lab along with unlined white paper for drawings and pencils**).

Instructors:  
Lab section 1 and 2 - Prof. Crow

Location:  
Lecture - Hill 102  
Laboratory - Boyden Hall Room 125 (**Note, no labs the first week of classes!!! The first lab meeting will be September 13th or 14th depending upon your lab section**).

Credits:  
3 credits for lecture and 1 credit for laboratory; presently the course is as two separate courses, but must be taken concurrently and the subject material intertwined.

Meetings:  
Lecture meets T & Th from 10:00 to 11:20 AM; you must be on time.  
Lab section 1 meets Tuesdays from 1:00 to 3:50 PM; section 2 meets Wednesdays from 10:00 AM to 12:50 PM.

Attendance is required for lectures and laboratories; attendance will be taken and you must be on time. Two missed lectures can be made up without penalty by submitting handwritten notes based upon notes obtained from other students. The notes must be submitted within 10 days of an absence in order to obtain credit. A 5-point penalty will be otherwise be taken from your overall total in the course for missed lectures up to 20 points. A more severe penalty of an additional one-grade reduction will be made for 5 or more lecture absences. **Do not leave early without permission of the professor; leaving early will result in a 10-point penalty.**

Laboratory is also required and up to a one-grade reduction will be made for each laboratory session not made up. Missed laboratory sessions may be made up by switching sections during the week you miss a lab with permission of the lab instructor if possible; otherwise, laboratories cannot be made up. It will be your responsibility to work with your lab instructor to determine, on an individual basis, other make-up or partial make-up possibilities. There are no guarantees that you will have a make-up opportunity. A biology laboratory kit (or equivalent) is recommended. You must also bring plain drawing paper to each laboratory along with a #2 pencil. Photographing of experiments, lab materials, and examples will be allowed. Otherwise, your phone, camera, or other recording device must be away from your stations and turned completely off.

It is not my intention to be punitive, but missing lectures and labs detracts from what you can learn in the class. You need to be there, prepared, and ready to take all assignments seriously.
A field trip to an approved regional Botanical Garden is required for satisfactory completion of the course (the garden list will be on the web and discussed in class), is part of the lecture-lab requirement, and must be completed and reported as listed on the syllabus calendar.

A brief, illustrated report will be required describing your visit to the garden. You will need to present a summary of your experience and tell me about your favorite part of the garden and why. In addition to other photos, you must include a photo of yourself in an identifying location within the garden. The report must be presented in Microsoft Word (.doc or .docx) or Apple’s Pages at 1.5 spacing in the Times or Times New Roman 12-point font. Other forms of presentation will not be accepted. The reports should be submitted via email to Prof. Crow. The field trip and trip report are required to pass the course and a penalty of one-half grade per day past the due date will be assessed. The field trip is expected to add to your knowledge of science in general and horticulture specifically. The approved world-class botanical gardens each have extensive collections and demonstrations regarding horticultural practices and the science behind the practices used in horticulture. Each garden also features significant historical and cultural information that you might use in your report. The trips are always quite enjoyable. Once there, most student want to go again!

A term paper will also be required for those students taking in order to pass the lecture course. The subject matter will be a plant chosen for each student by Professor Crow. The report must be presented in Microsoft Word (.doc or .docx) or Apple’s Pages at 1.5 spacing in the Times or Times New Roman 12-point font. Other forms of presentation will not be accepted or marked down considerably. The reports should be submitted via email to Prof. Crow. At least 3 non-web resources and 5 web resources are required as reference materials. Detailed instructions about the format will be made available prior to the assignment. The report is required to pass the course and a penalty of one-half grade per day on the assignment will be made for late term paper reports. The term paper needs to include an introductory section on the history of the plant, a description of the plant (and varieties), and growing/cultivation practices. The principal goal of the paper is to provide you with an opportunity to gain knowledge of the subject matter, sort out the most important information and explain the growing practices in scientific terms, and improve your writing skills. Where, and if possible, note the importance of your assignment in terms of historical, ethical, cultural, artistic, or other interesting subjects.

The grade on reports will be based upon the following: subject research or observation quality and completeness, organization, use of references, appropriate use of citations (no plagiarism!), and presentation. Note, for the botanical garden trip report there need not be any references or citations.
Misc.: There are no prerequisites for this course. The course serves as one of the optional college science requirements for non-majors and is in the works for approval again. Recording of lectures and labs is not allowed (policy follows).

Text: Texts are listed along with reading assignments at the end of the syllabus. Expect supplementary readings and assignments along with handouts.

Grading: Quizzes and Exams: In lecture, approximately 5 or 6 scheduled quizzes and 1 or 2 “pop” quizzes that will be spread across the semester plus a semester final. In laboratory there will be two quizzes, a mid-term exam, and a final practical exam along with 1 or 2 pop quizzes. All exams and quizzes are all cumulative with respect to content. Do not leave lecture without permission after quizzes are given or you will be counted absent and your quiz will not be graded. If there is a reason you must leave any lecture, notify Prof. Crow in advance of your departure. Of course, valid reasons will be honored. You will not be allowed to take the lecture quizzes or exams if you arrive after 10:05 AM. Professor Crow will go over the quizzes immediately after each quiz is given and you are welcome to take notes; the actual quizzes will not be returned, but you may set an appointment to review again if you so desire.

Lab quizzes and the midterm will be reviewed the week following the quizzes and midterm.

Laboratory grading: laboratory notebooks (in binders) will be required and your everyday points (15) will be based upon the notebook and participation in each of the labs. 33% of each lab (5 points) will be scored on the instructor’s judgment regarding completeness and participation at then end of each lab day. The remaining 70% of the daily lab scores (10 points) will be based upon the quality of your work in lab as reflected in your notebook regarding. An important requirement of the course is the laboratory binder/notebook. Everything you do in laboratory is to be documented in a laboratory binder. The binder will be a collection of all your drawings, answers to questions, details about experiments and lab exercises, and reports. Your original lab work may be rewritten and presented to provide a neat record of your lab experiences; note, you will be required to include your original laboratory notes and work as backup for the finished work. The binder will be collected approximately halfway through the semester at the time of the midterm. At the beginning of the lab final your lab notebook will be collected for final grading. The lab notebooks must be turned in on time or there will be a loss of one-grade for each day late. Do not fall behind with your lab work. Each lab protocol will have questions or exercises to respond to. Make sure you respond completely; you may write neatly on the lab sheets. Your lab instructor will lead the way with respect to major parts of the protocol during the lab so that you can follow and reproduce the methods and techniques taught. You must participate! You must report on all the labs and assignments related to each lab.
Laboratory reports will be a regular part of the lab exercises that count into the weekly grading (assume 3 or 4 such reports); this will also give you experience with charts, tables, and writing up the reports. See the grading grading matrix that follows. Daily lab grades given will be based upon completeness and quality of the work done during the lab period. With respect to assignments, they must be done on time or a deduction will be taken. In lecture there will be a few, 3 or 4, short assignments or exercises that will also be counted toward your grade. These short reports or exercises will count from 5 to 10 points each.

No extra credit opportunities are planned for lecture or laboratory and the grading will be in accordance with University policies. Your grade will be compared to the work done by all students in the class.

Please note that there may be special support opportunities if you are having trouble and require extra help. First, contact Prof. Crow and also determine if tutoring is available. Any special needs students should let Prof. Crow know immediately at the beginning of the semester. All such information will be kept in strictest confidence. Note that the course follows University policies with respect to all educational matters.

Be advised that all electronic equipment (computers, phones, tablets in any form, recorders, transmitters, and the like must be off and placed away from your person upon entering the lecture hall or laboratory). There can be no food in the laboratory and no eating or drinking in lecture either. There is one exception, and that is for laboratory, photographing of laboratory work specimens and apparatus is allowed; otherwise, the phones must be off and placed away from you in your coat, bag, or other secure place. Please refer to the policy statement below.

Assume >90% = A; >88% = B+; >80% = B; > 78% = C+; >70% = C; >60% = D; and <60% = F; note the lecture and lab attendance requirements as well as participation will influence your grade. Remember, the lecture and lab are graded separately at this time.

Improvement counts in this course, so it is important to be encouraged by that fact. This will be the basis for movement of a grade upward. Such improvement may result in as much as a one-half grade improvement for the course.

*** Please note that students must abide by the the University and College policies with respect to student conduct. Also, be polite, raise your hand and be acknowledged by Professor Crow or lab instructor before you speak. ***

Academic Dishonesty: The course has a zero tolerance policy for academic dishonesty, including plagiarism and cheating. Instances of dishonesty will be punished by a zero on the assignment and consultation with the Academic Integrity Officers to determine if further action is required. If you have any
questions about what constitutes plagiarism or cheating, please ask your
instructors or refer to the academic integrity websites for Rutgers and NJIT:

http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers
http://studentconduct.rutgers.edu/
http://www.njit.edu/academics/integrity.php

**Cell Phone policy, etc.:** cell phones are not allowed in lecture and must be turned off completely and placed out of reach or secured out of access; the same for laboratory except as noted above for use photographing specimens as described above.

If you use your phone, or other electronic device in lecture or lab for recording or outside communication of any kind, you will be ejected from that lecture or lab and a you will be subjected to a deduction of 25 points; a report will be made to the Dean. Recording of any part of the lecture will result in dismissal from the course permanently, a failing grade, and a report will be made to the Dean. Any use of a cell phone or other electronic device during an exam may result confiscation of the device in question, immediate permanent ejection from the class, a grade of F or disciplinary failing grade, and a report of the incident to the Dean for further disciplinary action.

A penalty of 10 points will be deducted from your grade if your cell phone goes off in class. Cell phones cannot be on your person or available and within reach during any form of exam or quiz. Violation of this policy will automatically result in a cheating allegation and will be turned over to the Dean for enforcement; your cell phone may be confiscated by the professor and turned over to the Dean; you will not be allowed to continue taking the quiz or exam and will be required to leave the room. No audio or video recording of any kind will be allowed in lecture or lab with the exception of those specific items listed below.

Exception for lecture: at the the end of each lecture there will be an opportunity for students to photograph the blackboard as a means of getting the professor’s sketches, etc.

Exception for laboratory: use of cell phone cameras is allowed as a means to record plants, plant parts, and materials used in laboratory; no other use is permitted. Photos do not substitute for drawings, but may aid you in that respect and allow you to record details precisely. Photos must be carefully labelled if used as part of the lab reports. Professor Crow will assist you, as needed.
# Lecture and Laboratory Points

<table>
<thead>
<tr>
<th>Item</th>
<th>Points*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lecture</strong></td>
<td></td>
</tr>
<tr>
<td>attendance</td>
<td>20</td>
</tr>
<tr>
<td>quizzes</td>
<td>120</td>
</tr>
<tr>
<td>botanical garden trip &amp; report</td>
<td>75</td>
</tr>
<tr>
<td>term paper</td>
<td>80</td>
</tr>
<tr>
<td>final</td>
<td>160</td>
</tr>
<tr>
<td>other assignments</td>
<td>20</td>
</tr>
<tr>
<td>total lecture (approx.) =</td>
<td>475</td>
</tr>
<tr>
<td><strong>Laboratory</strong></td>
<td></td>
</tr>
<tr>
<td>10 each</td>
<td>135</td>
</tr>
<tr>
<td>4 assignments</td>
<td>45</td>
</tr>
<tr>
<td>2 quizzes (15 each)</td>
<td>30</td>
</tr>
<tr>
<td>botanical garden trip &amp; report</td>
<td>75</td>
</tr>
<tr>
<td>midterm</td>
<td>60</td>
</tr>
<tr>
<td>final</td>
<td>130</td>
</tr>
<tr>
<td>total lab</td>
<td>475</td>
</tr>
</tbody>
</table>

*points subject to change
# Lecture Schedule - fall 2016 - see the separate reading assignment pages

<table>
<thead>
<tr>
<th></th>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/6</td>
<td>Introduction - shopping for a plant, pots, and more - container gardening - seasonal issues</td>
</tr>
<tr>
<td>2</td>
<td>9/8</td>
<td>Scientific method(s) - Plant parts and diversity - plant(s) of the day - report topic assignments</td>
</tr>
<tr>
<td>3</td>
<td>9/13</td>
<td>Asexual plant reproduction - clones, division, cuttings plus mitosis</td>
</tr>
<tr>
<td>4</td>
<td>9/15</td>
<td>Sexual plant reproduction - flowers, fruits, and seeds and review plus meiosis</td>
</tr>
<tr>
<td>5</td>
<td>9/20</td>
<td>QUIZ 1 and review - Soils intro/texture/tilth/structure (eval. of the soils &amp; quick tests); nutrition</td>
</tr>
<tr>
<td>6</td>
<td>9/22</td>
<td>Soil moisture parameters; planting and soil preparation indoors and out - landscaping</td>
</tr>
<tr>
<td>7</td>
<td>9/27</td>
<td>Botanical Garden week</td>
</tr>
<tr>
<td>8</td>
<td>9/29</td>
<td>Botanical Garden week - and report work- plant report outline &amp; citations due!!</td>
</tr>
<tr>
<td>9</td>
<td>10/4</td>
<td>QUIZ 2 and review - plant(s) of the day</td>
</tr>
<tr>
<td>10</td>
<td>10/6</td>
<td>Fertilizing the above, composts, etc.</td>
</tr>
<tr>
<td>11</td>
<td>10/11</td>
<td>Fertilizing the above, composts, etc.</td>
</tr>
<tr>
<td>12</td>
<td>10/13</td>
<td>Water, watering, and humidity (demonstrations with soil &amp; psychrometers) &amp; quick campus walk</td>
</tr>
<tr>
<td>13</td>
<td>10/18</td>
<td>QUIZ 3 and review - Landscaping, gardens, lawns, trees, annuals, and perennials</td>
</tr>
<tr>
<td>14</td>
<td>10/20</td>
<td>More about landscaping and gardening - plant(s) of the day</td>
</tr>
<tr>
<td>15</td>
<td>10/25</td>
<td>Botanical gardens of the world</td>
</tr>
<tr>
<td>16</td>
<td>10/27</td>
<td>QUIZ 5 and review - Plant anatomy - plant metabolism</td>
</tr>
<tr>
<td>17</td>
<td>11/1</td>
<td>Complete plant metabolism - seasonal issues, frost, etc. - plant(s) of the day</td>
</tr>
<tr>
<td>18</td>
<td>11/3</td>
<td>Flowers and fruits</td>
</tr>
<tr>
<td>19</td>
<td>11/8</td>
<td>More flowers and fruits - plant(s) of the day</td>
</tr>
<tr>
<td>20</td>
<td>11/10</td>
<td>Flex lecture &amp; research papers due via email by 6 PM!!!!</td>
</tr>
<tr>
<td>21</td>
<td>11/15</td>
<td>Hormones and other considerations - plant(s) of the day</td>
</tr>
<tr>
<td>22</td>
<td>11/17</td>
<td>QUIZ 6 and review - Temperature both indoor and outdoor considerations</td>
</tr>
<tr>
<td>23</td>
<td>11/24</td>
<td>Thanksgiving week - no lectures - no labs - review only</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>Introduction to light (intensity, quality, day length)</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>More about light - plant(s) of the day</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>Biocides - diseases and assorted plant maladies plus diagnostics</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>QUIZ 7- Vegetable gardens, herb gardens, and selected gardens</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>Semester Review - Last day of classes</td>
</tr>
</tbody>
</table>

Reading Days: December 14th and 15th

Final Exam - December 22nd at 8:30 to 11:20 AM in Hill 102 - No one admitted after 8:35 AM.

* Prof. Crow’s office hours are ordinarily T, W, & Th 8:45 to - 9:45 AM and by appointment.
<table>
<thead>
<tr>
<th>Laboratory</th>
<th>Date</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>lab 1</td>
<td>9/13 &amp; 14</td>
<td>The Plant Body</td>
</tr>
<tr>
<td>Protocol 1</td>
<td></td>
<td>Specific subjects include general morphology of the shoot and root. In addition, the lesson covers leaves, leaf arrangement, venation, and margins. The lesson also covers such things as woody and herbaceous plants, Angiosperms, Gymnosperms, monocots, dicots, and spore producing plants such as ferns.</td>
</tr>
<tr>
<td>lab 2</td>
<td>9/20 &amp; 21</td>
<td>Plant Reproduction - Seeds - Sexual Reproduction</td>
</tr>
<tr>
<td>Protocol 2</td>
<td></td>
<td>This laboratory is about how to start seeds of various types and begins a semester-long ‘competition’ for successful growth of plants started in the laboratory. We will start some seeds suspended in plastic freezer bags. This exercise is begun in the lab and carried home. The exercises include cleaning, soaking, and planting seeds. Ultimately, some of the seeds are replanted at a later point in time. Both row and broadcast seeding are demonstrated. Seeds will be planted that will serve as examples of genetic types that will ultimately be referenced in lectures that come later in the semester. The class will record their observations in subsequent weeks.</td>
</tr>
<tr>
<td>lab 3</td>
<td>week of 9/25</td>
<td>Botanical Garden Week</td>
</tr>
<tr>
<td>Protocol 3</td>
<td></td>
<td>This provides you with a credited day to go to the botanical garden in case you have not already done so and provide you with some reporting time - my 1st choice is the Brooklyn Botanic Garden. I have set this in lab 8 so that the weather will be more likely to be cooperative and the seasonal growth more advanced at the gardens. By this time many plants will be in bloom that you could not have seen earlier in the season. This will not put a break in the final labs and final.</td>
</tr>
<tr>
<td>lab 4</td>
<td>10/4 &amp; 5</td>
<td>Plant Reproduction - Asexual Reproduction</td>
</tr>
<tr>
<td>Protocol 4</td>
<td></td>
<td>Cuttings are used to asexually reproduce plants and is one of the most important means of reproduction in horticulture. Such plants are actually clones. The exercises include how to make and start cuttings. Cuttings may come from stems or leaves depending upon the plant type. Students also learn about the techniques of layering, including air layering, and grafting (to a limited extent). Plant growth substances are also used in this lab. Certain experiments will continue for several weeks and will required weekly evaluations. Bulbs, corms, and rhizomes will be investigated. Cold and other treatments will be initiated in this laboratory.</td>
</tr>
<tr>
<td>lab 5</td>
<td>10/11 &amp; 12</td>
<td>Soils - Part 1</td>
</tr>
<tr>
<td>Protocol 5</td>
<td></td>
<td>Soil texture is investigated in this laboratory. Subjects include, examination of various soil textures; the textural triangle, mechanical analysis, field methods, commonly used soil mixes and components, and fertilizers. Soil quick tests and other chemical measurements will be made on selected soil media with reference to field condition. Nutrient deficiencies symptoms and causes will also be investigated in this laboratory. Depending upon growth of seeds germinated earlier, seed will be transplanted in this laboratory.</td>
</tr>
<tr>
<td>lab 6</td>
<td>10/18 &amp; 19</td>
<td>Soils - Part 2</td>
</tr>
<tr>
<td>Protocol 6</td>
<td></td>
<td>A variety of tests are used to evaluate properties and standard soil parameters. Among the parameters to be investigated are saturation, field capacity (ability of soils to ‘hold’ water, and non-capillary pore space (air space in the soil). In addition, observations will be made and recorded for permanent wilting percentage. The relationships of these to other soil parameters such as pH and soil fertility will be investigated.</td>
</tr>
<tr>
<td>lab 7</td>
<td>10/25 &amp; 26</td>
<td>Laboratory 6 - Mid-term Examination</td>
</tr>
<tr>
<td>no protocol</td>
<td></td>
<td>The Plant Kingdom</td>
</tr>
<tr>
<td>lab 8</td>
<td>11/1 &amp; 2</td>
<td>Representative plant examples along with fungi and bacteria will be examined. The laboratory demonstrates diversity and also includes organisms that may be pathogens to higher plants. Symbiotic and parasitic relationships will be investigated in this lab. Students will visit the greenhouse. A related campus walk will be done in lecture.</td>
</tr>
</tbody>
</table>
If you have an questions please contact Prof. Crow in person or by email - drcrow@verizon.net; and remember to use the code GHf16 followed by your name and why you are writing me in the subject line of the email. If you do not follow this instruction, I may never see your email!!!!

Required Texts:

This text is available from iBooks and Amazon digital books at very economical prices; the books are also available in hardcopy directly from Amazon. This text will be used for daily assignments; the reading assignments follow in this syllabus.

This text is available in digital and hardcopy formats from Amazon. It will be used as a reference for specific plants and examples as subjects arise.

Professor Crow will demonstrate some great features of the digital texts. You are required to have digital copies of the texts. The laboratory protocols will be available in advance of the laboratory sessions in pdf format on the website.

Note, Prof. Crow will announce other reading assignments.

If you have any questions please contact Prof. Crow in person or by email. Remember to use the correct subject code in your correspondence.

This is the basic required reading for class this semester. You will see that this also corresponds with many subjects in laboratory. The book is comprehensive, but because of the organization, one can pick and choose pertinent sections. Also, because the book is in a digital format from either Apple’s iBooks or Amazon, you can find do searches that will help you find materials quickly. Of course, the book is available as a hardcopy as well. The notations to the right are the lecture numbers, so look through the entire list. NOTE - other reading assignments will be made in class and on the website, Blackboard, or email.

Table of Contents

CHAPTER 1 - Plants and People
AGRICULTURE, GARDENS, AND CIVILIZATION
HORTICULTURE IN RELATION TO OTHER DISCIPLINES
CLASSIFICATION OF HORTICULTURAL CROPS
WHY GROW A GARDEN?

CHAPTER 2 - Structure and Growth: The Vegetative Phase
PHASES OF PLANT GROWTH
THE CELL
PLANT TISSUE AND STRUCTURE
PLANT FUNCTIONS RESPONSIBLE FOR GROWTH
PHOTOSYNTHESIS, RESPIRATION, AND THE ATMOSPHERE

CHAPTER 3 - Structure and Growth: The Reproductive Phase
THE FLOWER
THE SEED
POLLINATION
THE FRUIT

CHAPTER 4 - Propagation of Garden Plants
CONTAINERS AND MEDIA FOR PLANT PROPAGATION
PROPAGATING PLANTS FROM SEED
PROPAGATING PLANTS ASEXUALLY

CHAPTER 5. - Soil and Soil Fertility
PHYSICAL AND CHEMICAL RELATIONSHIPS OF PLANT-GROWING MEDIA
SOIL FERTILITY
MANAGING SOIL AND FERTILIZER FOR THE GARDEN

CHAPTER 6 - Water and Irrigation
THE MOISTURE CYCLE
WATER AND PLANT GROWTH
WATER QUALITY AND WATER POLLUTION
IRRIGATION

CHAPTER 7 - Climate, Temperature, and Light
CLIMATE AND HORTICULTURE
PLANT ADAPTATION TO CLIMATE & OTHER FACTORS OF THE ENV.
TEMPERATURE
LIGHT AND THE GROWTH OF GARDEN PLANTS
CHAPTER 8 - Regulating Plant Growth
PLANT SPACING“
GROWTH CONTROL BY PRUNING
CHEMICAL MODIFICATION OF PLANT GROWTH
OTHER WAYS OF MODIFYING PLANT GROWTH

CHAPTER 9 - Garden Pests
Pesticide Regulations
WEEDS
PLANT DISEASE AND INSECT PESTS
CONTROL OF GARDEN INSECTS AND DISEASES
BIRDS AND ANIMALS

CHAPTER 10 - Indoor and Container Gardening
ENVIRONMENTAL LIMITATIONS TO GROWING PLANTS INDOORS
ADAPTING INDOOR PLANTS TO A CHANGING ENVIRONMENT
KINDS OF PLANTS FOR INDOOR GARDENING
TAKING CARE OF CUT FLOWERS AND GIFT PLANTS
CONTAINER PLANTING OUTDOORS
SPECIALIZED STRUCTURES FOR PLANT GROWING
*1 - References to these subjects from time to time in class - be prepared to refer to this chapter.

CHAPTER 11 - The Ornamental Garden
THE HOME LANDSCAPE
WOODY PLANTS AND PLANTINGS
HERBACEOUS PLANTS AND PLANTINGS
LAWNS AND OTHER GROUND COVERS

CHAPTER 12 - The Vegetable and Herb Garden
PLANNING THE VEGETABLE GARDEN
GROWING THE VEGETABLE AND HERB GARDEN
VEGETABLES AND HERBS IN THE LANDSCAPE
GROWING HINTS FOR VARIOUS VEGETABLES
GROWING TEMPERATE-ZONE HERBS
“HARVESTING HERBS
A FEW OF THE MORE POPULAR TEMPERATE-ZONE HERBS

CHAPTER 13 - Growing Fruit
SMALL FRUIT PRODUCTION IN THE HOME GARDEN
TREE-FRUIT PRODUCTION IN THE HOME GARDEN

CHAPTER 14 - The Handbook
PURPOSE AND ORGANIZATION
SOURCES OF GARDENING INFORMATION
SOIL PREPARATION
TESTING SEED GERMINABILITY
ESTIMATING PLANTING DATE
PROPAGATING PLANTS FROM SEED
PROPAGATING WITH CUTTINGS
LAYERING TO RENEW OR MULTIPLY PLANTS
PROPAGATING FROM FLESHY STORAGE ORGANS
GRAFTING AND BUDDING
GROWING GARDEN SEED AT HOME
TRANSPLANTING WOODY PLANTS
REPOTTING
CHAPTER 14 - The Handbook continued
MULCHING WITH SHEET MATERIALS L13
COMPOSTING L13
FERTILIZING GARDEN CROPS L13
IRRIGATING GARDEN CROPS L13 & 21
PRUNING AND TRAINING L13
LANDSCAPE CONSTRUCTION L13 & 14
HARVESTING
STORING HORTICULTURAL PRODUCTS
HOME PROCESSING
NUTRITIONAL VALUES OF HORTICULTURAL FOODS
CONTROLLING GENERAL GARDEN PESTS L27
CLIMATE, HARDINESS, AND MATURITY L16
PLANTS FOR THE LANDSCAPE L16
Questions for Review and Discussion

Glossary
Conversion Tables
Index
Notes


Rutgers-NCAS Academic Calendar:

Fall semester begins Tuesday, January 19, 2016;
Thanksgiving Vacation Thursday - Sunday the week of November 20th;
Classes end Wednesday, December 13, 2016;
Reading days are December 14th and 15th; and
Final Exams extend from Thursday, May 5 through Wednesday, May 11, 2016.
Your lecture final will be Thursday, December 22nd, Merry Christmas.

Please note that this syllabus is subject to change. Students will be notified in class, by Blackboard, or the web including the class website, drcrow.org.

Good luck and enjoy,
Prof. Crow

loc code GHf16 syllabus